Agenda

• Master Data Management Defined
• The Need for Master Data Management
• What Can Go Wrong
• Indicators for MDM Challenges
• MDM Solutions
• Where To Start
What is Master Data?

Definitions according to IDC Research

**Transaction Data**
[record of an event]
In essence, a date/time and a quantity

**Reference Data**
[Data to classify and reference events]
Product Type / Account / Cost Center

**Master Data**
[Enterprise reference data]
Agreed-to reference data that spans more than one system
### What Makes Master Data Special?

<table>
<thead>
<tr>
<th>Transaction Data</th>
<th>Static – once recorded, transactions themselves do not change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Data</td>
<td>Can change over time, redefining how historical and/or future transactions are classified</td>
</tr>
<tr>
<td>Master Data</td>
<td>Can change over time, changes must be coordinated across multiple systems, timing sensitive</td>
</tr>
</tbody>
</table>
"MDM is a set of disciplines and processes for ensuring the accuracy, completeness, timeliness and consistency of the most important types (or domains) of enterprise data across different applications, systems and databases, multiple business processes, functional areas, organizations, geographies and channels."

Dan Power, Hub Solution Designs
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Changing Information Presents a Challenge
Master Data Facts

Companies
- 240 businesses will change addresses
- 150 business telephone numbers will change or be disconnected
- 112 directorship (CEO, CFO, etc.) changes will occur
- 20 corporations will fail
- 12 new businesses will open their doors
- 4 companies will change their name

In one hour...

Individuals
- 5,769 individuals in the US will change jobs
- 2,748 individuals will change address
- 515 individuals will get married
- 263 individuals will get divorced
- 186 individuals will declare a personal bankruptcy

In one hour...

Products
- On average 20% duplicates in product data
- 90% product introductions fail
- Retailers lost 40 billion or 3.5% of total sales lost each year due to item info inefficiencies
- 60% error rate for all invoices generated
- Global Data Sync will realize 30% lower IT costs

In one year...


Master data changes at rate of 2% per month.

Compounded, 2% monthly change is 27% per year, 61% in two years, \(104\%\) in three years!!!
If Only Things Were Simple!
If there were only one system, capturing and managing change would be easy!

Prod ID: 910-300A02
Type: Mesh Element
Family: Auto
Last Update: 9/27/2009

Report: Top Items by YTD Sales

<table>
<thead>
<tr>
<th>Rank</th>
<th>Prod ID</th>
<th>Type</th>
<th>YTD Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>028-3029A09</td>
<td>Screen</td>
<td>12,152</td>
</tr>
<tr>
<td>2</td>
<td>A04989-2</td>
<td>Hi-Flow</td>
<td>9,434</td>
</tr>
<tr>
<td>3</td>
<td>910-300A02</td>
<td>Mesh Element</td>
<td>8,739</td>
</tr>
<tr>
<td>4</td>
<td>02903-390</td>
<td>Hi-Flow</td>
<td>7,543</td>
</tr>
<tr>
<td>5</td>
<td>020-29398A</td>
<td>TopSpin</td>
<td>7,350</td>
</tr>
<tr>
<td>6</td>
<td>020-08002</td>
<td>TopSpin</td>
<td>6,518</td>
</tr>
<tr>
<td>7</td>
<td>09203-098</td>
<td>Hi-Flow</td>
<td>6,189</td>
</tr>
<tr>
<td>8</td>
<td>M029-1820</td>
<td>PK-Type1</td>
<td>5,152</td>
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</tbody>
</table>
Most Organizations Are Complex

Changes occur anywhere and everywhere, leading to information disparity

ETL

Report: Historical Item Demand

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Creating a “Top Items” report is easy, but can you really trust the results?
MDM Manages Ongoing Information Change
Consolidate, Cleanse, Standardize, Cross-Reference, Govern, and Share

Each department and system is sharing the same information – easily understand a consistent item definition.

Report: Historical Item Demand

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</tbody>
</table>

A global, reliable cross reference makes consolidating information from disparate systems both easy and accurate.
MDM provides critical data management services to consolidate, cleanse, share and govern key enterprise data.

These data management services are not provided out-of-the-box by the Data Warehouse, BI, CRM, ERP, Web Services, SOA Suite, ODI Suite, nor any other solution.
## Timeline: Enterprise Information Management

<table>
<thead>
<tr>
<th>Decade</th>
<th>Core Problem</th>
<th>Approach</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990’s</td>
<td>Fragmented Systems</td>
<td>How to I <em>move</em> data from one system to another?</td>
<td>Data integration tools (ETL)</td>
</tr>
<tr>
<td>2000’s</td>
<td>Fragmented Systems</td>
<td>How do I <em>share</em> data between applications?</td>
<td>Service Oriented Architecture (SOA)</td>
</tr>
<tr>
<td>2010’s</td>
<td>Fragmented Systems</td>
<td>How do I <em>manage</em> information across systems?</td>
<td>Master Data Management (MDM)</td>
</tr>
</tbody>
</table>

**Same Old Problem**

**New Perspective**

**New Approach**
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- Where To Start
What Can Go Wrong – Excess Inventory

The Often Unrecognized Consequences of Data Fragmentation

Existing Inventory
SKU 39482073948
Panasonic Resistor, 4.0 Ω DC 4.0 v

Out of Stock
SKU 2043828332
Hitachi Resistor, 4 Ohm @4 volts DC

New Order
SKU 2043828332
Hitachi Resistor, 4 Ohm @4 volts DC

Our various component sources have no standards for attributes – impossible to recognize potential cross-application uses.
What Can Go Wrong – Excess Production
The Often Unrecognized Consequences of Data Fragmentation

Demand Signal
SKU 2043828332 Hi-Flow Hydraulic Filter

Existing Inventory
SKU 39482073948 High Flow Hydraulic Filter

Low Inventory
SKU 2043828332 Hi-Flow Hydraulic Filter

New Production
SKU 2043828332 Hi-Flow Hydraulic Filter

Suppliers
Component Warehouse 1
Component Warehouse 2

Customers
Region 1 Region 2 Region 3 Region 4

Assembly Plant

DC 1 DC 2
What Can Go Wrong – Procurement Costs
The Often Unrecognized Consequences of Data Fragmentation

Supplier C - Catalog

<table>
<thead>
<tr>
<th>UPC</th>
<th>Prod ID</th>
<th>Description</th>
<th>Carton Qty</th>
<th>$ / Ctn</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 13685 03501 6</td>
<td>B2-01-8</td>
<td>Lube Oil Filter Unit, Spin-On, .75x16tpi 3.38in x 5.10in</td>
<td>12</td>
<td>124.86</td>
</tr>
<tr>
<td>7 93148 31083 8</td>
<td>HF20-A</td>
<td>Threaded Lube Anti-Drain Valve .75/16 4.25in x 0.20in</td>
<td>10</td>
<td>98.82</td>
</tr>
<tr>
<td>7 91688 35566 5</td>
<td>HF90-0</td>
<td>Threaded Lube Anti-Drain 3/4 dia x 16tpi 3.84in x 5.88in</td>
<td>12</td>
<td>84.37</td>
</tr>
<tr>
<td>7 15866 00010 8</td>
<td>TS-392</td>
<td>Twist Lock HFP 1.38inx 1.09in Gasket 030-9</td>
<td>8</td>
<td>68.84</td>
</tr>
</tbody>
</table>

Supplier A - Catalog

<table>
<thead>
<tr>
<th>UPC</th>
<th>Prod ID</th>
<th>Description</th>
<th>Price</th>
<th>Min Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 91440 00618 8</td>
<td>RK03-23</td>
<td>Lube Fltr Spin-On ADV 3/4x16 3 11/16x5 13/32 G381-A</td>
<td>9.87</td>
<td>10</td>
</tr>
<tr>
<td>7 13886 41681 8</td>
<td>S-509-2</td>
<td>Hydro Fltr Twist Lk Gsk 832.2 2mm 4 3/16 x 5.7/8</td>
<td>5.24</td>
<td></td>
</tr>
<tr>
<td>7 31864 65818 2</td>
<td>LF893a</td>
<td>Inline separator, self-bleed, 84μ 1 5/8 x 2 13/16 15 kPa</td>
<td>28.42</td>
<td>6</td>
</tr>
<tr>
<td>7 31864 31868 6</td>
<td>LF283c</td>
<td>Inline filter, nb, 23 kPa 30 micron element 2 1/16 x 2 7/8</td>
<td>14.48</td>
<td>6</td>
</tr>
</tbody>
</table>

Component Warehouse 1
Component Warehouse 2
Buyer 1
Buyer 2

Supplier C

No visibility that these are in fact identical parts by specification

If I could recognize that these are indeed identical, is one of them a better deal?

Are other buyers in my company buying identical parts? Could we combine our purchases to negotiate a better discount?
What Can Go Wrong – Order Fulfillment

The Often Unrecognized Consequences of Data Fragmentation

Order Fails Acceptance

Order fulfilled By EMEA

Error in Conversion

EMEA Has Stock Polymer Slew Bearing

No Raw Material Backorder 90 Days Polymer Slew Bearing

Request – New Item Polymer Slew Bearing 8.283in x 4.284in x .382in
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Where Does MDM Fit in the IT Landscape?

“We don't make a lot of the products you buy. We make a lot of the products you buy better” circa 1992

“MDM doesn’t replace demand planning, supply chain planning, order fulfillment or BI. MDM makes these critical functions work better”
Common Indicators for MDM Challenges

- Product and material information spanning multiple disparate systems
- Multiple IDs or SKUs for the same product across markets, systems, business units or facilities
- Interactions with multiple suppliers with no catalog consistency
- Inconsistent product attribution and/or units of measure across business units, markets, geographies
- Obscured visibility across product lines or business units prevents realization of synergies and efficiencies
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Master Data Entities by Domain

Operational MDM

- **Customer**
  - Customer (business)
  - Customer (individual)
  - Partner
- **Supplier**
  - Vendor
  - Supplier
- **Product**
  - Product (Finished Good)
  - Component
  - Bill of Materials
  - Material
  - Service
  - Package
  - Promotion
  - Instrument or Investment
- **Site**
  - Store
  - Building
  - Facility
  - Market
  - Distribution Center
  - Delivery Location
  - Postal Address

Financial & Analytical MDM

- Chart of Accounts
  - Account
  - Cost Center
  - Entity
- Dimensions
- Mappings*
- Reporting Hierarchies
- Sales Territories
- Product Classifications
- Security Structures

*Mappings are often cross-domain, such as product to sales channel
# Domain Specific Requirements

<table>
<thead>
<tr>
<th>Customer (Company, Individual)</th>
<th>Supplier (Supplier, Vendor)</th>
<th>Product (Product, Material)</th>
<th>Sites (Store, Branch, Facility)</th>
<th>Financial &amp; Analytical Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Standardize / parse address &amp; phone information</td>
<td>• Supplier on-boarding</td>
<td>• Standardize product</td>
<td>• Site within a site</td>
<td>• Cross-domain relationships &amp; mappings</td>
</tr>
<tr>
<td>• Validate addresses</td>
<td></td>
<td></td>
<td>• Trade areas</td>
<td>• Visually manage hierarchies</td>
</tr>
<tr>
<td>• Data enrichment (Axcio, Dun &amp; Bradstreet)</td>
<td></td>
<td></td>
<td></td>
<td>• Align different financial perspectives (US GAAP, etc.)</td>
</tr>
<tr>
<td>• Support party model</td>
<td></td>
<td></td>
<td></td>
<td>• Provide historical and future, “what-if” versioning</td>
</tr>
<tr>
<td>• B2C and B2B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Conclusions:

1) It takes more than an extensible data model to support different MDM domains

2) Enterprise MDM is not a “one size fits all solution”
Enterprise-Grade MDM from Oracle

Applications Approach to Simplify Enterprise IT

Solution Components

1. Data Quality Tools
2. Enterprise Hierarchies (DRM)
3. Application Integration Architecture
4. Master Data Applications

MDM Suite

- Party (Pattern-Based) Data Quality
- Product (Semantic) Data Quality

Master Data Applications

Customer  Supplier  Site  Product

Enterprise Hierarchies & Relationships (DRM)

Fusion Middleware
Comprehensive Business Context MDM Applications

Domain-Specific Apps Deliver
- Specialized features and capabilities out-of-the-box
- Fully extensible framework
- Common platform
- Open standards – plug into any architecture
- Deploy the Apps you need when you need them
- Faster time-to-value

Oracle’s Unique Approach
- Oracle is delivering specialized, modular MDM applications
- Additional specialized apps are under development
- Other vendors have taken a “one-size-fits-all” approach
- Oracle’s unique approach has been validated by leading MDM analysts

MDM Applications
- Customer
- Supplier
- Site
- Product

- A complete repository for all location definitions and associated attributes (territory, location, building, store, site, etc.)
- Lifecycle management from prospection, competition analysis, selection & opening to closure
- Physical locations integrated with Google Maps for visualization

Customer
- Capture attributes and relationships for organizations, people, and households in a rich, industry specific, and extensible data model
- Track the source of customer attributes and view historical customer profiles
- Manage and maintain common understand across systems
- Match, merge, consolidate, enrich and share critical party information

Supplier
- Capture attributes and relationships for vendors and suppliers
- Supplier on-boarding management – qualification,
- Supplier self-service portal to register available services, manage contacts, update profiles, etc.
- Out-of-the-box integration to eBusiness Suite procurement modules

Site
- Automate product introduction and manage changes from suppliers via data pools, portal/direct access or product file load
- Stage, approve and enrich product data with external and internal sources
- Master clean & trusted item and supplier/location relationships
- Publish trusted product information across business ecosystem

Product
- Capture attributes and relationships for vendors and suppliers
- Stage, approve and enrich product data with external and internal sources
- Master clean & trusted item and supplier/location relationships
- Publish trusted product information across business ecosystem

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Tools to Manage, Cleanse and Share Master Data

A Complete Framework for Delivery

**Pattern-Based Data Quality**
- Cleanse and standardize address, telephone and e-mail information
- Validate and enrich address data for 240 countries
- Enforce country-specific formatting standards for address and telephone
- Parse, translate and standardize names and addresses across 52 languages
- Monitor and protect customer data quality and completeness

**Semantic Data Quality**
- Next generation semantic technology is “context aware”
- Recognize, cleanse, match, validate, correct, translate and repurpose product data
- Parse dense and unstructured text to retrieve and standardize meaningful attributes
- Standardize product attributes, classifications, and descriptions
- Translate from and to different languages

**Data Relationship Management**
- Market leading enterprise hierarchy management solution
- Capture relationships that span business domains, such as well to reservoir, supplier to territory
- Model an unlimited number of alternate views, such as well to service territory vs. well to environmental territory vs. well to legal country
- Capture historical relationships, compare across time, and model future scenarios

**Application Integration Architecture**
- Complete integration solution for orchestrating agile, user-centric business processes across your enterprise applications
- Pre-built, sustainable integrations reduce implementation risk and cost
- Application–independent design makes it easy to plug and play new applications
- Open, standards-based architecture accelerates time-to-value
Enterprise-Grade MDM from Oracle

A Composite Solution to Deliver Information Alignment

✓ Complete

- Application Centric Approach
  - Configurable applications vs. a "build your own" toolkit with consulting assets
  - Specialized applications vs. “one size fits all”
- Pattern-based data quality
- Semantic data quality
- Enterprise Hierarchy Management

✓ Open

- Mix and match with other components
- Leverage existing assets
- Invest in what you need when you need it

✓ Integrated

- Leverage master data in your key business processes
- Robust integration architecture
  - Leverage pre built business objects, testing framework
  - Out of the box integrations delivered as Process Integration Packs

➢ Fastest Time to Value
➢ Lowest TCO
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MDM Project Motivators

1. Value driven MDM initiative
   • Seek out and quantify business exceptions resulting from data inconsistency

2. Implementation driven MDM initiative
   • MDM as an enabler for technology investments
   • Data standardization and consolidation a critical part of system implementation

3. Organization driven MDM initiative
   • Rapidly realize synergies across independent business lines, acquired companies
   • Maximize leverage and utilization